The NEW ENGLAND JOURNAL of MEDICINE

CORRESPONDENCE

◀ Previous Volume 337:276-277 July 24, 1997 Number 4 Next ▶

Hepatitis G Infection

To the Editor: To the reports on hepatitis G virus (HGV) infection by H.J. Alter et al. and M.J. Alter et al. (March 13 issue),[1,2] we can add some information concerning HGV RNA in the liver. Their studies were based on analyses of serum samples, and a direct evaluation of liver tissue may help increase our understanding of HGV infection.

Five patients infected with both HGV and hepatitis C virus (HCV) underwent liver biopsy before receiving interferon therapy for chronic hepatitis. To evaluate HGV replication in the liver, we compared the amounts of HGV RNA and HCV RNA in liver and serum samples. Total RNA was extracted from approximately 3 mg of a liver-biopsy specimen or 100 µl of a serum sample. The reverse-transcription reaction was performed with antisense primers for the 5' untranslated regions of both HGV and HCV, as well as with an antisense primer for beta$_2$-microglobulin in the liver samples, in the same tube. Serial 10-fold dilutions of the synthesized complementary DNA were subjected to a seminested polymerase-chain-reaction (PCR) assay with the use of specific primers for HGV,[3,4] HCV, or beta$_2$-microglobulin. The sensitivity of PCR was approximately 10 DNA copies per sample for HGV and 100 DNA copies per sample for HCV; the sensitivity was monitored and found to be constant with the use of serial dilutions of cloned PCR products.

ARTICLE

- Table of Contents

Related articles in the Journal:

- Alter, M. J.
- Alter, H. J.
- Find Similar Articles in the Journal
- Notify a friend about this article
- Articles citing this article

SERVICES

- Add to Personal Archive
- Download to Citation Manager
- Alert me when this article is cited

MEDLINE

- Related Articles in Medline

Articles in Medline by Author:

- Kudo, T.
- Nakatsuji, Y.
- Medline Citation

As Table 1 shows, in the liver samples, the estimated amount of HGV RNA was approximately 1/10,000 the amount of HCV RNA. In contrast, the amounts of serum HGV RNA and HCV RNA were similar. HGV was undetectable in the liver sample from Patient 5, despite a large amount of beta$_2$-microglobulin RNA in the sample. Serum HGV RNA was still detectable after interferon therapy in all five patients.

View this table: [in this window] [in a new window] **Table 1.** Amounts of Viral RNA in Liver and Serum Samples, as Estimated with the Reverse-Transcriptase PCR Assay.

Our results support the absence of a causal relation between HGV and hepatitis[1,2] and raise the possibility that HGV may replicate in other tissues. The observed amount of HGV RNA in the liver may be explained by contamination from serum, since the estimated volume of serum required to produce the results is approximately 0.1 µl. However, it is possible that we are not aware of diseases caused by HGV, since its attack rate is unknown.[5]

Toyoichiro Kudo, M.D., Ph.D.
Tsuneo Morishima, M.D., Ph.D.
Motohiro Shibata, M.D., Ph.D.
Nagoya University School of Medicine
Nagoya 466, Japan

References

1. Alter HJ, Nakatsuji Y, Melpolder J, et al. The incidence of transfusion-associated hepatitis G virus infection and its relation to liver disease. N Engl J Med 1997;336:747-754.[Abstract/Full Text]
2. Alter MJ, Gallagher M, Morris TT, et al. Acute non-A-E hepatitis in the United States and the role of hepatitis G virus infection. N Engl J Med 1997;336:741-746.[Abstract/Full Text]
3. Kudo T, Morishima T, Tsuzuki K, Orito E, Mizokami M. Hepatitis G virus in immunosuppressed paediatric allograft recipients. Lancet 1996;348:751-751.[Medline]
4. Orito E, Mizokami M, Nakano T, et al. GB virus C/hepatitis G virus infection among Japanese patients with chronic liver diseases and blood donors. Virus Res 1996;46:89-93.[CrossRef] [Medline]
5. Miyakawa Y, Mayumi M. Hepatitis G virus -- a true hepatitis virus or an accidental tourist? N Engl J Med 1997;336:795-796.[Full Text]

To the Editor: The reports by M.J. Alter et al.[1] and H.J. Alter et al.[2] and the accompanying editorial by Miyakawa and Mayumi[3] make it clear that the recently discovered blood-borne virus called HGV has little association with chronic liver disease. We postulated, however, that patients infected with the human immunodeficiency virus (HIV) might have a low tolerance for HGV infection, as noted in the case of HGV's distant relative, HCV,[4] or that there might be interference between the two viruses, as noted in the case of HCV and hepatitis D virus.[5]

We quantified HCV viremia with branched-chain DNA (bDNA) techniques (HCV Quantiplex 2.0, Chiron, Emeryville, Calif.). HGV viremia (RNA) was evaluated by reverse-transcription PCR[2] with the use of deheparinized plasma samples from 81 patients with hemophilia enrolled in the Multicenter Hemophilia Cohort Study, of whom 52 were HIV-positive. The patients included 15 asymptomatic, HCV-negative patients with paired longitudinal samples and unexplained transaminase elevations, 12

patients with chronic, life-threatening hepatic failure (9 were HCV-positive and HIV-positive, 2 were HCV-positive and HIV-negative, and 1 was HCV-negative and HIV-positive), and 54 HCV-positive controls closely matched for HIV status, age, and hemophilia center.

In this group of patients with hemophilia, prevalence rates for HGV viremia were 13 percent in the 15 HCV-negative patients, 8 percent in the 12 patients with hepatic failure, and 9 percent in the 54 matched controls. The prevalence of HGV viremia was not significantly higher in the HIV-positive patients (11 percent) than in the HIV-negative patients (8 percent). Lastly, there was no evidence of interference between HGV viremia and HCV viremia (mean number of HCV copies per microliter, 153×10^5 in the HGV-positive patients and 77×10^5 in the HGV-negative patients).

These observations buttress those reported previously[1,2,3] and indicate that HIV-infected patients are not at increased risk for HGV viremia, nor are they more likely to have life-threatening hepatic failure in association with HGV viremia. These findings do not rule out the possibility that HGV may cause extrahepatic manifestations and disease, but they have yet to be identified.

James J. Goedert, M.D.
Leigh Anne Steinmeyer
National Cancer Institute
Rockville, MD 20852

Yoshiyuki Nakatsuji, M.D.
Shinshu University
Matsumoto, Japan

References

1. Alter MJ, Gallagher M, Morris TT, et al. Acute non-A-E hepatitis in the United States and the role of hepatitis G virus infection. N Engl J Med 1997;336:741-746.[Abstract/Full Text]
2. Alter HJ, Nakatsuji Y, Melpolder J, et al. The incidence of transfusion-associated hepatitis G virus infection and its relation to liver disease. N Engl J Med 1997;336:747-754.[Abstract/Full Text]
3. Miyakawa Y, Mayumi M. Hepatitis G virus -- a true hepatitis virus or an accidental tourist? N Engl J Med 1997;336:795-796.[Full Text]
4. Eyster ME, Diamondstone LS, Lien JM, Ehmann WC, Quan S, Goedert JJ. Natural history of hepatitis C virus infection in multitransfused hemophiliacs: effect of coinfection with human immunodeficiency virus. J Acquir Immune Defic Syndr 1993;6:602-610.[Medline]
5. Eyster ME, Sanders JC, Battegay M, DiBisceglie AM. Suppression of hepatitis C virus (HCV) replication by hepatitis D virus (HDV) in HIV-infected hemophiliacs with chronic hepatitis B and C. Dig Dis Sci 1995;40:1583-1588.[Medline]

This article has been cited by other articles:

- Pujol, F. H., Khudyakov, Y. E., Devesa, M., Cong, M.-E., Loureiro, C. L., Blitz, L., Capriles, F., Beker, S., Liprandi, F., Fields, H. A. (1998). Hepatitis G Virus Infection in Amerindians and Other Venezuelan High-Risk Groups. *J. Clin. Microbiol.* 36: 470-474 [Abstract] [Full Text]

- Table of Contents

Related articles in the Journal:

- Alter, M. J.
- Alter, H. J.

- Find Similar Articles in the Journal
- Notify a friend about this article

SERVICES

- Add to Personal Archive
- Download to Citation Manager
- Alert me when this article is cited

MEDLINE

- Related Articles in Medline

Articles in Medline by Author:

- Kudo, T.
- Nakatsuji, Y.

- Medline Citation